



DAE HEUNG IND. CO., LTD.
 #135, Gimhae-daero 974Beon-gil, Hallim-myeon,
 Gimhae-si, Gyeongsangnam-do, 621-873, Korea
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CERTIFICATE OF MATERIAL

(EN10204 ; 2004 3.1)

Certificate No. : DH-202112-694

Date : 2021/12/22

Page : 1 of 2

Customer ALLIED GROUP			Project:						P.O No.: PO23528						Heat Treatment ※1							
Spec. For Material : A/SA182 F304/304L+NACE (2017ED)			※2 Chemical Composition (%)														DHH210607-27 S.T:1050°C X 9.66 HRS-W.C					
			Spec.	C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Nb	Al	W			Ti	N	Ceq	PREN
			Min.						8.0	18.0											0.10	
Heat No. & Lot No. : WALSIN 6F844-1607E			H	0.023	0.41	1.37	0.029	0.0004	8.04	18.11	0.19						0.0741		19.9			
			P																			

Raw Certificate No. : A2011170202

Direction ※3	Specimen		Spec.	Tension Test				Hardness (HBW)	Charpy Impact Test (10*10*55mm)			Bending Test	Dimensional Inspection	
	Dia. in.	Gage Length in.		Yield Strength ksi	Tensile Strength ksi	Elongation %	Red. of Area %		Individual	Average	Notch Type			
	0.5	2		30	75	30	50		MIN.	MIN.				
			Min. Max.										GOOD	
								237	Test Result				Visual Inspection	
									1	2	3	Ave.	Temp.	
T	0.5	2		36	92	59	75	156,157						GOOD

Description				Remark			
No.	Dimension	Q'ty	Part No.				
32	B16.5 150# BL RF 12"	10 EA	4L1BR12	- NACE MR0175/ISO15156,NACE MR0103 - No repair welding - PREN = Cr+3.3Mo+16N - SI unit(specimen-12.5mmX 50.0mm) : Y.S-251MPa / T.S-640MPa - Intergranular Corrosion Test Test Method : ASTM A262-15 Practice E Test Report No.: 213722-G05128 Result : Accepted - All material supplied is certified to be free of Mercury contamination and no mercury bearing equipment was used during manufacturing			
33	B16.5 150# BL FF 12"	20 EA	4L1BF12				
34	B16.5 150# BL RF 10"	10 EA	4L1BR10				
42	B16.5 150# BL RF 2"	50 EA	4L1BR2				
46	B16.5 150# SW RF 1 1/2" S/40S	50 EA	4L1KRS1.5				
49	B16.5 150# THREAD RF 2 1/2"	20 EA	4L1TR2.5				
50	B16.5 150# THREAD RF 2"	70 EA	4L1TR2				
51	B16.5 150# THREAD RF 1 1/2"	20 EA	4L1TR1.5				
52	B16.5 150# THREAD RF 1 1/4"	40 EA	4L1TR1.25				
53	B16.5 150# THREAD RF 1"	50 EA	4L1TR1				
60	B16.5 150# LJ 2 1/2"	20 EA	4L1L2.5				
112	B16.5 300# WN RF 2 1/2" S/40S	90 EA	4L3WRS2.5				

Inspector		We here by certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.		 Manager of Quality Assurance Dept.	
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Notes : ※1 Heat Treatment : N = Normalizing A = Annealing Q = Quenching T = Tempering R : Stress Relieving S.T : Solution Treatment SA = Solution Annealing
 STA = Stabilized Annealed O = Other QT = Quenching Tempering Z = Stabilization NT = Normalizing Tempering

A.C = Air Cooled W.C = Water Cooled F.C = Furnace Cooled O.C = Oil Cooled R.C = Rapid Air Cooling S.A = Solution Annealing W.Q = Water Quenched

※2 TR : Trace

※3 Direction : C=Crosswise L=Longitudinal Tr=Transverse T=Tangential R=Radial U=UW-13(Direction Parallel to the Axis of the Vessel)



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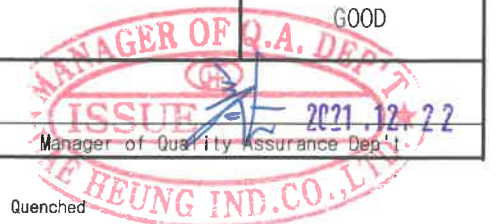
Customer ALLIED GROUP		Project:										P.O No.: PO23528						Heat Treatment ※1				
Spec. For Material : A/SA182 F304/304L+NACE (2017ED)		※2 Chemical Composition (%)																DHH210607-27 S.T:1050°C X 9.66 HRS-W.C				
		Spec.	C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Nb	Al	W	Ti	N			Ceq	PREN	
		Min.						8.0	18.0													
		Max.	0.030	1.00	2.00	0.045	0.030	11.0	20.0								0.10					
Heat No. & Lot No. : WALSIN 6F844-1607E		H	0.023	0.41	1.37	0.029	0.0004	8.04	18.11	0.19						0.0741		19.9				
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Direction ※3	Specimen		Spec.	Tension Test				Hardness (HBW)	Charpy Impact Test (10*10*55mm)				Bending Test	Dimensional Inspection
	Dia. in.	Gage Length in.		Yield Strength ksi	Tensile Strength ksi	Elongation %	Red. of Area %		Individual MIN.	Average MIN.	Notch Type			
	0.5	2		Min.	75	30	50		Test Result			Temp.		
T	0.5	2	Max.	36	92	59	75	156,157						
									1	2	3	Ave.		Visual Inspection

Description				Remark			
No.	Dimension		Q'ty	Part No.			
113	B16.5 300# WN RF 2" S/80S		25 EA	4L3WRX2		- NACE MR0175/ISO15156, NACE MR0103 - No repair welding - PREN = Cr+3.3Mo+16N - SI unit (specimen-12.5mmX 50.0mm) : Y.S-251MPa / T.S-640MPa - Intergranular Corrosion Test Test Method : ASTM A262-15 Practice E Test Report No. : 213722-G05128 Result : Accepted - All material supplied is certified to be free of Mercury contamination and no mercury bearing equipment was used during manufacturing	
114	B16.5 300# WN RF 2" S/40S		25 EA	4L3WRS2			
115	B16.5 300# WN RF 1 1/2" S/10S		25 EA	4L3WRA1.5			
119	B16.5 300# S0 RF 2"		45 EA	4L3SR2			
120	B16.5 300# S0 RF 1 1/2"		25 EA	4L3SR1.5			
121	B16.5 300# BL RF 1 1/2"		25 EA	4L3BR1.5			
122	B16.5 300# BL RF 1"		25 EA	4L3BR1			
123	B16.5 300# SW RF 1" S/10S		25 EA	4L3KRA1			
124	B16.5 300# SW RF 1/2" S/40S		25 EA	4L3KRS.5			

Inspector: _____ We here by certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.



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